

## ENERGY TRANSITION

# Being responsible



Photo: Total

**Arnaud Breuillac, President, Exploration & Production, Total, outlines how the company is preparing for a low carbon future. He will be speaking at IP Week on 26–28 February 2019.**

*Given the global transition to a low carbon future, how are Total's business and operational models changing with respect to tackling climate change?*

Total's ambition is to be 'the responsible energy major', which means integrating into our strategy actions to address the global warming challenge. We do this by offering our clients an energy mix with a decreasing carbon intensity. Yet we have done this for many years. So what is really changing now?

What is new is that we have stepped up significantly our investments in low carbon electricity – that is, electricity generated by gas or by renewable energy. This is illustrated by our recent acquisitions of Engie LNG, Direct Energie, Total Eren and Saft, but also through transport energy deals with CMA-CGM for LNG bunkering and Clean Energy to fuel trucks with LNG in the US.

Our objective is to generate over 10 GW of low carbon electricity within five years and to reach a 15% market share of the B2C (business to consumer) sector in France and Belgium by 2023 (versus 6% and 9% respectively in 2017).

What is also new is the way we want to measure the evolution of the energy mix we propose to our clients. We have introduced an indicator of the carbon intensity of the energy products we sell (details can be found in our last *Climate Report*). This metric indicates the average of our products' greenhouse gas emissions, from the moment they are produced in our facilities to their end-use by the customer.

Total's ambition is to reduce that carbon intensity by 15% between 2015 – the date of the Paris Agreement – and 2030. In the longer term, beyond 2030, our ambition is to pursue these efforts, or if possible to accelerate them as new technologies become available and public policies are put in place, to reach a reduction in carbon intensity of between 25% and 35% by 2040.

This trajectory is our contribution to the objectives set out in the Paris Agreement, in a

very practical and measurable manner. It also allows us to fulfil our mission of supplying the greatest number of people with energy that is both affordable and clean. This dual challenge of affordability and cleaner energy is what drives Total's strategy.

*What balance do you see between conventional oil/gas operations and renewables in Total's portfolio over the next decade?*

Our ambition is to have approximately 20% of low carbon electricity in our portfolio 20 years from now. And we see gas – abundant and flexible – as an excellent complement to renewable electricity, which is inherently intermittent.

We have shifted progressively from an 'oil and gas' company to an 'energy company' focusing on gas, oil and low carbon electricity.

*How is Total's regional focus likely to change in the coming years?*

From Total's creation in 1924 with participation in Iraqi licences and then through mergers with Petrofina in 1999, Elf Aquitaine in 2000 and more recently with Maersk Oil in 2018, we have built a strong position in three core geographies – the Middle East, Africa and the North Sea. These three regions represented around 80% of our production in the early 2000s and still around two-thirds in recent years. Total intends to continue expanding its activities in these three historic regions by capitalising on the strengths it has developed there.

The recent deals in the Emirates, in Qatar, Libya and Algeria demonstrate that Total is a partner of choice in the Middle East/North Africa region that is expected to provide more development opportunities in the future thanks to its long-term resources. Total has developed a deep knowledge and a broad experience in Africa through its leading position, which it intends to keep in the future, as illustrated by several major ongoing projects and by the vast exploration acreage captured over the past years. Finally, Total is the second largest operator in the North Sea, with many synergies and opportunities at stake to maintain a strong position in this area.

Beyond these three historic regions, Total is developing its activities in new areas with commercially attractive, important resources. Since 2010, the company has increased significantly its presence in Russia through its partnership with Novatek and participation in the very successful

Yamal LNG project; and there are more gas developments to come in the future. We have also built a material position in both Brazil and the US Gulf of Mexico that are expected to be in the top 10 producing countries in the forthcoming decade. Additional areas might emerge for Total, depending notably on exploration results and as long as significant commercial resources can be contemplated.

*What key technological innovations and research is Total focusing on?*

Total has a long history of technological innovation within R&D, especially in the field of digital technology. In the domain of seismic imaging, advanced algorithms have been developed and are implemented on our HPC (high performance computer) located in Total E&P's technical centre in Pau, France. More recently, in the field of reservoir simulations, automated history match methods are now used for faster, more accurate studies, resulting in optimised field development. These new approaches require large computing power and are benefiting from our HPC.

Robotics and connected sensors are also becoming a key component of our research in fields ranging from seismic acquisition (eg the METIS project, see *Petroleum Review's* March 2018 issue) to drilling (with the development of advanced downhole gas sensors connected to the surface via 'high speed' telemetry in the well).

In parallel to its historical R&D efforts, since 2015 Total has put in place a digital initiative that aims to identify areas of performance improvement with business units that could be addressed with emerging digital technology such as artificial intelligence (AI), Cloud computing, mobile devices and the Internet of Things (IoT).

This effort is primarily driven by business needs. Several dedicated programmes have been implemented – notably the Industrial Mobility programme that already deploys mobile devices to our operators on industrial sites to better collect data and free up time resources. On the data side, we have launched three programmes – the first, targeting industrial data (for predictive maintenance applications, for example), a second programme targeting real-time drilling data (with HSE and performance objectives) and a third programme in geosciences in collaboration with Google Cloud AI specialists. ●